

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-7. (cancelled)

8. (currently amended) ~~Waveguide~~ A waveguide, which is part of an integrated optical circuit, the waveguide being arranged onto a planar substrate and having a core section propagating light ~~to~~ in a certain direction, ~~the direction of propagation,~~ **characterised** in that the waveguide is a conversion waveguide (60) between a ridge-type waveguide (61) and a strip waveguide (62), ~~in which said conversion waveguide the core section is being made of the one and same material so that the a cross-section of the core section transverse to the direction of propagation (z) of light is two-step (6; 6^{1a}, 6^{2a}; 6^{1b}, 6^{2b}) from both edges (60a, 60b), and in which said conversion waveguide there are comprising first and second two layers (60¹, 60²) of different widths (l_{60a}, l_{60b}), the a height (h_{60a}) of the first layer (60¹) being equal to the a height of the a ridge (61¹) of the ridge-type waveguide (61), and the a height (h_{60b}) of the second layer (60²) being equal to the a height of the a base part (61²) of the ridge-type waveguide (61), and in which the a sum of the heights (h_{60a}, h_{60b}) of the first and second layers (60¹, 60²) is being equal to the a height of the strip waveguide (62), the widths of the two layers (60¹, 60²) being arranged to change uniformly between the ridge-type and strip waveguides to be connected for fitting ~~them~~ the ridge-type and strip waveguides together laterally.~~

9. (currently amended) ~~Waveguide~~ The waveguide according to claim 8, **characterised** in that the waveguide (60) is made of semiconductor material, ~~especially silicon~~.

10. (currently amended) ~~Waveguide~~ The waveguide according to claim 9, **characterised** in that the waveguide (60) is made onto a SOI substrate.

11. (currently amended) ~~Waveguide~~ The waveguide according to claim 8, **characterised** in that the widths (l_{60a} , l_{60b}) of the layers (60^1 , 60^2) of the conversion waveguide (60) are arranged to change linearly between the ridge of the ridge-type waveguide (61) and ~~the~~ a rectangular core section of the strip waveguide (62) of different widths for connecting ~~them~~ the ridge-type and strip waveguides together with ~~the help of the~~ conversion waveguide (60).

12. (currently amended) ~~Method~~ A method for manufacturing an integrated optical circuit onto a substrate, **characterised** in that ~~the waveguide is~~ a conversion waveguide (60), ~~which~~ is manufactured between ~~the~~ a ridge-type waveguide (61) and ~~the~~ a strip waveguide (62) onto such a substrate (7), on which there is a light-propagating core section (7c), in which method the core layer (7c) is controllably thinned in two stages for forming two different steps on both sides of the conversion waveguide so that different process patterns are utilised in both thinning stages, ~~the~~ edges of which determine ~~the~~ a location of the edges of the steps of the waveguide on the substrate, so that the result obtained is a waveguide structure, which is two-step (6 ; 6^{1a} , 6^{2a} ; 6^{1b} , 6^{2b}) from both edges ($60a$, $60b$) transverse to ~~the~~ a direction of propagation of light, in which the conversion waveguide (60) is provided with ~~two~~ first and second layers (60^1 , 60^2) of different widths (l_{60a} , l_{60b}) so that ~~the~~ a height (h_{60a}) of the first layer (60^1) is arranged to be equal to a ~~the~~ height of

~~the~~ a ridge (61^1) of the ridge-type waveguide (61), and ~~the~~ a height (h_{60b}) of the second layer (60^2) is arranged to be equal to ~~the~~ a height of ~~the~~ a base part (61^2) of the ridge-type waveguide (61), and in which ~~the~~ a sum of the heights (h_{60a} , h_{60b}) of the first and second layers (60^1 , 60^2) is arranged to be equal to ~~the~~ a height of the strip waveguide (62), and the widths of the two layers (60^1 , 60^2) are arranged to change uniformly between the ridge-type and strip waveguides (61, 62) to be connected for fitting ~~them~~ the ridge-type and strip waveguides together in ~~the~~ a lateral direction.

13. (currently amended) ~~Method~~ The method according to claim 12, **characterised** in that the waveguide (5) is manufactured onto a suitable finished substrate (7), ~~such as a SOI wafer or similar.~~

14. (currently amended) ~~Method~~ The method according to claim 12, **characterised** in that one common hard mask layer (9 ; 9^1) is used ~~in it~~ for providing at least two different process patterns to the core layer (7c) of the substrate.

15. (currently amended) ~~Method~~ The method according to claim 13, **characterised** in that one common hard mask layer (9 ; 9^1) is used ~~in it~~ for providing at least two different process patterns to the core layer (7c) of the substrate.